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ScienceDirect

Procedia - Social and Behavioral Sciences 116 (2014) 3609 – 3618

Procedia
Social and Behavioral Sciences

5th World Conference on Educational Sciences - WCES 2013

Researching personal epistemologies in higher education

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Abstract

With this paper, we share some of the results of a post-doctoral research project investigating the epistemic beliefs of Romanian medical students and how these operate within the context of learning English for medical purposes. A battery of questionnaires (EBS, BALLI, SILL) were used in a survey on 160 1st year medical students at the end of the academic year 2011-2012. Data analysis included descriptive statistics, appropriate correlations and factor analyses, corroborated with observed classroom behaviour and performance over one academic year. The results invite discussion at several levels, e.g. methodological, cultural, curricular.

Keywords: Personal epistemology, higher education, medical students, Romania;

1. Introduction and theoretical underpinnings

In almost 10 years of teaching medical students in Romania, we have witnessed repeatedly how students' own conceptions of learning influence their (dis)engagement with both curricular and extra-curricular activities. The stakes are high in disciplines when seeking to develop active competences emerging from actual practice (e.g. language and communication skills). Following doctoral research into the moral development of medical students in the context of the language classroom, we became increasingly interested in the hypothesized relationship between students' personal epistemologies, their choice of learning strategies and the learning outcomes. Consequently, we reviewed the available literature seeking both conceptual understanding and methodological guidance, proceeding then to conducting our own quantitative study backed by direct observations and contact with the students.

2. Theoretical underpinnings

Personal epistemology now benefits from several decades of cognitive psychology research leading to the development of a still maturing theoretical framework. In general, people's conceptions of knowledge and learning, as well as their reflective ability, evolve from dualism/absolutism to relativism/evaluativism as life's experiences, and education in particular, bring up new information, challenges, dillemmas and perspectives (Perry, 1970; King & Kichener, 1994; Kuhn & Weinstock, 2002 etc.). However, this is not as linear a process as developmental models may appear to suggest. Another way into the domain of personal epistemic beliefs is to view them as a complex and

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doi:10.1016/j.sbspro.2014.01.811

dynamic system of beliefs which are not necessarily interdependent and synchronous in their evolution, but which shape one's relationship to knowledge (e.g. beliefs about the structure, stability and sources of knowledge) and learning (e.g. beliefs about speed and ability to learn) (Schommer-Aikins, 2002).

Also, while some of these beliefs stretch across the entire range of one's interests and occupations, others are influenced by and influence in turn one's educational and professional orientation. In fact, age specificity and then discipline-specificity have been two of the most fertile grounds for research in this area, especially in relation to (higher) education, as we have reviewed recently (Cretu, 2012). One increasingly clear argument resulting from studies conducted on university students all over the world is that epistemic beliefs play an active role in academic study and performance. Consequently, forming and updating epistemic beliefs should be viewed as legitimate learning outcomes alongside acquiring knowledge, skills and attitudes.

In the same vibe, the success of language courses depends on a wide range of factors among which internal to the students, such as their cognitive and affective dispositions (beliefs, personality etc.). Stevick (1980) went as far as asserting that success with language learning depends more on internal processes than teaching materials and methods. Understanding these relationships allows for a more effective and empowering pedagogy, especially when language is being studied for professional purposes (e.g. medicine). As Bernat and Gvozdenko explain (2005), learners' beliefs about language learning have been investigating through normative approaches (e.g. with Lickert scale questionnaires), meta-cognitive aproaches (e.g. with semi-structured interviews) and contextual approaches (e.g. with ethnographic studies, narratives). Quantitative methods allow for large samples and bring clarity and precision, but not without limitations. Qualitative methods bring more depth and texture, but are highly contextual and limited in scale.

One of the better known taxonomies attempting to measure language learning beliefs is by Horwitz (1987), used also extensively in research through the self-report instrument Beliefs about Language Learning Inventory. BALLI consists of 34 statements related to the following five dimensions: foreign language aptitude, the difficulty of language learning, the nature of language learning, learning and communication strategies, motivations and expectations. At the end of the 20th century, Horwitz also provided a review of the studies in which the BALLI questionnaire had been used (1999). One of the findings was that beliefs about language learning seemed to be influenced by context and culture, an observation further confirmed by more recent research conducted in different parts of the world (see Bernat & Gvozdenko, 2005). Also, it became increasingly clear how students' beliefs may sometimes hinder learning as opposed to having a catalyst effect, and therefore teachers' awareness and management of such beliefs as part of the learning experience has often been recommended.

Complementarily, regarding language learning strategies, a similar methodology linking theory to research was proposed by Oxford (1990) and has since been widely used in tens of studies on many thousands of learners. The SILL questionnaire (Strategies Inventory for Language Learning) translates possible approaches to language learning into six sets of statements referring to memory-based strategies, cognitive-based strategies, compensatory strategies, metacognitive strategies, affective strategies and, last but not least, social-based strategies. Both BALLI and SILL have been used together to investigate potential links between beliefs and strategy, such as in a number of Asian studies (see Hong's doctoral thesis, 2006), the results most commonly confirming the hypothesis.

3. Aims

Although the amount of empirical data across disciplines and the number of studies published internationally are mounting, we still know very little about Romanian students' profile by research means of a similar nature to what has been done in other countries. Our aim, therefore, has been to contribute with data and insight from Romania in a way that is compatible with the wider research puzzle but is, at the same time, applicable and relevant locally. In this paper, we shall provide an overview of our study and results. Specifically, we shall highlight general tendencies and tale-telling correlations between the data sets, while the literature, detailed item analyis, factor analyses and case studies are discussed in more depth elsewhere (papers currently in print and unpublished reports can be made available to interested readers and potential collaborators upon request).

4. Methods

In order to probe into students' epistemic beliefs and learning strategies (both generic and discipline specific), we designed a questionnaire-based survey aggregating three self-report instruments inviting the respondents to express (dis)agreement on a 5-step Lickert scale.

Upon considering DeBacker et al.'s 2008 review of available self-report instruments for non-discipline specific epistemic beliefs, we chose to use the Epistemological Beliefs Survey / EBS (Wood & Kardash, 2002). In addition, our survey also contained the Beliefs about Language Learning Inventory / BALLI (Horwitz, 1987) and the Strategies Inventory for Language Learning / SILL (Oxford, 1990) to probe into discipline-specific beliefs and potential links to learning strategies. In all, our instrument included an explanation and consent form, a set of 10 items collecting general information (demographics and educational background), the EBS set (38 items), the BALLI set (35 items) and the SILL set (50 items).

The survey was conducted on Romanian medical students towards the end of their first year of study (May 2012). All the participants had been enrolled in the compulsory English course taught by the author and had already been confirmed independent to experienced users of English. The questionnaire was thus kept in English, with only minor changes to few items.

Students had up to 45 minutes to complete the survey, which was introduced as not being part of the teaching or evaluation, but as a parallel educational research project. They could choose not to participate, to participate anonymously, to sign their names on the forms or to sign as well as include contact information. They were explained that the last two options would make it possible to analyse the data in the context of the year-long English course, to conduct case studies and follow up research, to share the results and invite reflection. Of the 161 questionnaires returned, one was ruled out due to the level of English acting as a possible barrier and only 12 were anonymous. We were therefore able to create a secondary, smaller database made of 50 students whom we knew had been active/uninhibited or passive/withdrawn in class throughout the academic year etc.

The quantitative analyses consisted in descriptive statistics, tests for reliability and distribution, correlations and factor analyses. These were supplemented by a comparative and qualitative look at individual cases of students and student categories (active vs passive).

5. Results

A summary of the data is available in Table 1 below. It is worth mentioning that the Alpha Cronbach internal consistency scores recommended all the sets as well as the items for analysis: for the EBS set, the overall consistency score was 0.711, for the BALLI set it was 0.621 and for the SILL set it was 0.894. Also, the results of Kolmogorov-Smirnov distribution tests for all the sets recommended non-parametric tests, for which reason we selected Spearman correlations as appropriate.

Table 1. Descriptive statistics (N=160)

Item (E1, E2... make up the EBS set. B1, B2... make up the BALLI set. S1, S2... make up the SILL set)	**Mean**	**Std. Dev.**
E1. You can believe most things you read.	2.65	1.026
E2. The only thing that is certain is uncertainty itself.	3.57	1.027
E3. If something can be learned, it will be learned immediately.	2.94	1.272
E4. I like information to be presented in a straightforward fashion; I don't like having to read between the lines.	3.61	1.176
E5. It is difficult to learn from a textbook unless you start at the beginning and master one section at a time.	3.47	1.121
E6. Forming your own ideas is more important than learning what the textbooks say.	3.85	1.059
E7. Almost all the information you can understand from a textbook you will get during the first reading.	2.66	1.096
E8. A really good way to understand a textbook is to reorganize information according to your personal scheme.	4.39	0.847
E9. If scientists try hard enough. they can find the answer to almost every question.	2.95	1.248
E10. You should evaluate the accuracy of information in textbooks if you are familiar with the topic.	3.92	0.824
E11. You will just get confused if you try to integrate new ideas in a textbook with knowledge you already have.	2.36	0.980
E12. When I study. I look for specific facts.	3.89	0.922

E13. If professors would stick more to the facts and do less theorizing, one could get more out of college.	3.92	0.908
E14. Being a good student generally involves memorizing a lot of facts.	2.94	1.297
E15. Wisdom is not knowing the answers, but knowing how to find the answers.	4.46	0.784
E16. Working on a difficult problem for an extended period of time only pays off for really smart students.	2.76	1.102
E17. Some people are born good learners; others are just stuck with a limited ability.	3.14	1.283
E18. Usually, if you are ever going to understand something, it will make sense to you the first time.	2.93	1.170
E19. Successful students understand things quickly.	3.57	3.505
E20. Today's facts may be tomorrow's fiction.	3.67	1.137
E21. I really appreciate instructors who organize their lectures carefully and then stick to their plan.	3.88	1.039
E22. The most important part of scientific work is original thinking.	4.14	0.887
E23. Even advice from experts should be questioned.	3.83	1.017
E24. If I cannot understand something quickly, it usually means I will never understand it.	1.68	0.914
E25. I try my best to combine information across chapters or even across classes.	3.97	0.772
E26. I do not like movies that do not have a clear-cut ending.	2.43	1.252
E27. Scientists can ultimately get to the truth.	2.89	1.079
E28. It is a waste of time to work on problems that have no possibility of coming out with a clear-cut answer.	2.49	1.003
E29. Understanding main ideas is easy for good students.	3.69	1.087
E30. It is annoying to listen to lecturers who cannot make their mind up about what they believe.	3.85	0.982
E31. A good teacher's job is to keep students from wandering off the right track.	3.44	1.012
E32. A sentence has little meaning unless you know the situation in which it was spoken.	3.74	1.071
E33. The best thing about science courses is that most problems have only one right answer.	3.36	1.087
E34. Most words have one clear meaning.	2.58	1.236
E35. The really smart students don't have to work hard to do well in school.	2.72	1.298
E36. When I learn, I prefer to make things, as simple as possible.	4.15	0.863
E37. I find it refreshing to think about issues that experts can't agree on.	3.37	1.059
E38. The information we learn in school is certain and unchanging.	2.24	1.135
B1. It is easier for children than adults to learn a foreign language.	4.33	0.843
B2. Some people have a special ability for learning foreign languages.	4.26	0.746
B3. Some languages are easier to learn than others.	4.39	0.745
B4. English is: 1) very difficult, 2) difficult, 3) of medium difficulty, 4) easy, 5) very easy.	3.36	0.706
B5. I believe that I will learn to speak English very well.	4.33	0.680
B6. People from my country are good at learning foreign languages.	3.48	0.911
B7. It is important to speak English with an excellent pronunciation.	3.62	0.983
B8. It is important to know about English-speaking cultures in order to speak English.	2.93	0.939
B9. You shouldn't say anything in English until you can say it correctly.	2.20	1.014
B10. It is easier for someone who already speaks a foreign language to learn another one.	2.91	0.944
B11. People who are good at mathematics or science are not good at learning foreign languages.	1.79	0.932
B12. It is best to learn English in an English-speaking country.	4.11	1.001
B13. I enjoy practicing English with the native English speakers I meet.	4.18	0.901
B14. It's o.k. to guess if you don't know a word in English.	3,22	0.945
B15. If someone spent one hour a day learning a language, how long would it take to speak it very well? 1) less than a year, 2) 1-2 years, 3) 3-5 years, 4) 5-10 years, 5) you can't learn a language in 1 hour a day.	2.32	1.180
B16. I have a special ability for learning foreign languages.	3.08	0.876
B17. The most important part of learning a foreign language is learning vocabulary words.	3.59	0.934
B18. It is important to repeat and practice a lot.	4.56	0.590
B19. Women are better than men at learning foreign languages.	2.59	0.973
B20. People in my country feel that it is important to speak English.	3.83	0.863
B21. I feel timid speaking English with other people.	3.14	1.231
B22. If beginners are permitted to make errors in English, it will be difficult for them to speak correctly later on.	2.81	1.159
B23. The most important part of learning a foreign language is learning the grammar.	3.37	1.013
B24. I would like to learn English so that I can get to know native English speakers better and their cultures.	3.66	0.997
B25. It is easier to speak than understand a foreign language.	2.17	0.933
B26. It is important to practice with cassettes or tapes.	3.35	0.919
B27. Learning a foreign language is different than learning other academic subjects.	3.81	0.828
B28. The most important part of learning English is learning how to translate from and to my native language.	3.31	0.933
B29. If I learn English very well, I will have better opportunities for a good job.	4.46	0.664
B30. People who speak more than one language are very intelligent.	3.38	0.943
B31. I want to learn to speak English well.	4.68	0.562
B32. I would like to have friends who speak English as a native language.	4.41	0.746
B33. Everyone can learn to speak a foreign language.	3.93	0.881
B34. It is easier to read and write English than to speak and understand it.	2.65	1.026

B35. Language learning involves a lot of memorization.	2.99	1.053
S1. I think of the relationship between what I already know and new things I learn in English.	3.49	0.940
S2. I use new English words in a sentence so I can remember them.	3.30	1.008
S3. I connect the sound of a new English word with an image or picture of the word to help me remember it.	3.03	1.254
S4. I remember a new English word by making a mental picture of a situation in which the word might be used.	3.38	1.197
S5. I use rhymes to remember new English words (e.g., know-no, nail-snail, cat-bat).	2.13	1.159
S6. I use flashcards to remember new English words.	2.09	1.109
S7. I physically act out new English words.	2.49	1.164
S8. I review English lessons often.	2.61	1.105
S9. I remember new English words or phrases by remembering their location on the page, board, or street sign.	3.38	1.197
S10. I say or write new English words several times.	3.01	1.155
S11. I try to talk like native English speakers.	3.77	1.051
S12. I practice the sounds of English.	3.44	1.126
S13. I use the English words I know in different ways.	3.59	0.986
S14. I start conversations in English.	3.46	1.132
S15. I watch English language television shows spoken in English or go to movies spoken in English.	4.36	0.865
S16. I read magazines, books, newspapers, and textbooks written in English.	4.01	1.016
S17. I write notes, messages, letters or reports in English.	3.45	1.092
S18. I first skim an English passage (read over the passage quickly) then go back and read carefully.	3.31	1.077
S19. I look for words in my own language that are similar to new words In English.	2.73	1.151
S20. I try to find patterns (grammar) in English.	3.04	0.983
S21. I find the meaning of an English word by dividing it into parts that I understand.	3.25	1.206
S22. I try not to translate word-for-word.	3.84	1.091
S23. I make summaries of information that I hear or read in English.	3.17	1.079
S24. To understand unfamiliar English words, I make guesses.	3.44	4.157
S25. When I can't think of a word during a conversation in English, I use gestures.	3.54	1.104
S26. I make up new words if I do not know the right ones in English.	2.74	1.299
S27. I read English without looking up every new word.	3.27	1.132
S28. I try to guess what the other person will say next in English.	3.17	1.047
S29. If I can't think of an English word, I use a word or phrase that means the same thing.	4.09	0.819
S30. I try to find as many ways as I can to use my English.	3.64	1.061
S31. I notice my English mistakes and use that information to help me do better.	3.75	0.997
S32. I pay attention when someone is speaking English.	4.11	0.958
S33. I try to find out how to be a better learner of English.	3.84	0.964
S34. I plan my schedule so I will have enough time to study English.	2.46	0.996
S35. I look for people I can talk to in English.	3.24	1.015
S36. I look for opportunities to read as much as possible in English.	3.38	0.972
S37. I have clear goals for improving my English skills.	3.14	1.028
S38. I think about my progress in learning English.	3.53	1.060
S39. I try to relax whenever I feel afraid of using English.	3.45	1.251
S40. I encourage myself to speak English even when I feel afraid of making a mistake.	3.62	1.166
S41. I give myself a reward or treat when I do well in English.	2.46	1.155
S42. I notice if I am tense or nervous when I am studying or using English.	3.15	1.146
S43. I write down my feelings in a language learning diary.	1.90	1.223
S44. I talk to someone else about how I feel about learning English.	2.40	1.299
S45. If I do not understand something in English, I ask the other person to slow down or say it again.	3.63	1.023
S46. I ask English speakers to correct me when I talk.	3.42	1.186
S47. I practice English with other students or native English speakers.	3.17	1.201
S48. I ask for help from English speakers.	3.22	1.173
S49. I ask questions in English to other students or native English speakers.	3.31	1.174
S50. I try to learn about the culture of English speakers.	3.16	1.144

The EBS data set paints the following picture regarding the discipline-generic epistemic beliefs of Romanian junior medical students participating in the survey. Judging by the means and correlations between items related to the speed of knowledge acquisition (E3, E7, E11, E16, E18, E24 and E38), the students are generally unsure whether or not understanding and learning is necessarily quick and immediate, although they seem to be in a mild disagreement. When it comes to knowledge construction and modification (E2, E6, E8, E10, E15, E20, E22, E23, E25, E31 and E37), it is clear that students appreciate how knowledge results from filtering and reorganizing information according to a personal scheme. However, their position is, again, less clear cut in relation to what

makes a student successful (items E14, E17, E19, E29 and E35), with neither strong agreement nor strong disagreement about the importance of memorizing facts, working hard or good learners being born as such. Moreover, attainability of objective truth (items E1, E9 and E27) was received with only a mild trace of skepticism.

Also, using the Spearman correlation formula, we identified 153 significant correlations within the EBS data set (84 at the 0.01 level and 69 at the 0.05 level), many of which link between items from the same category.When looking for correlations across categories, we noticed a few negative ones which also helped our emerging view of the epistemic profile painted by the data. For instance, the more students agreed with information in school being certain and unchanging / E38, the less they favoured the evaluation of information found in textbooks / E10 (-.222 at .005). Similarly, the more students appreciated about science courses the fact that most science problems have only one correct answer / E33, the less they agreed with today's facts being tomorrow's fiction / E20 (-.228 at .004). At the same time, agreement with the definition of being a good student as in memorizing lots of facts / E14 was directly proportional with believing that understanding is mainly immediate / E18 (.207 at .009), that most words have only one meaning / E34 (.224 at .004), that scientists can get to the truth / E27 (.281 at .000), as well as with students appreciation of science problems for having only one correct answer / E33 (.226 at .000) and lack of appreciation for movies which do not have a clear-cut ending / E26 (.214 at .007) etc.

Then, the BALLI data set points to the following conceptions about language learning. First, regarding foreign language aptitude (B1, B2, B6, B10, B11, B16, B19, B30, B33), students agree quite strongly that some people and especially children are better at learning languages, although everyone can learn to speak one. Also, there is some agreement with one's multilinguism as a sign of intelligence and with Romanians being good language learners. They clearly disagree with certain preferences or a certain gender being limiting or favouring factors in language learning. In fact, about the difficulty of language learning (B3, B4, B15, B25 and B34), students seem quite convinced that it is languages which pose a smaller or a greater challenge, English being considered as a medium to easy language to learn, possibly in 2-3 years of some daily practice. Then, as far as the nature of language learning is concerned (B8, B12, B17, B23, B27 and B28), students appreciate the benefits of learning a language in a country where it is spoken (though do not rate familiarity with the culture as particularly important). They consider language courses as different to their other subjects, but it is not entirely clear which aspect of language learning bears more weight (vocabulary, grammar, translation?). As for learning and communication strategies (B7, B9, B13, B14, B18, B21, B22 and B26), there is a strong agreement with practice and repetition in general as well as in the company of native speakers. Also, students seem to appreciate excellent pronunciation while disagreeing with not saying anything unless it can be said correctly. However, their self-assessment of their own timidity, their opinion about guessing when not knowing and about beginners being corrected when making a mistake are less obvious. Last but not least, their self-reported motivations and expectations (B5, B20, B24, B29, B31 and B32) point to these medical students being determined and hopeful about attaining a very good level of English, mainly to be able to access professional opportunties and to enjoy friendships with native English speakers, including to become more familiar with their cultures.

Third, the SILL data set indicates that students almost never use memory based-strategies such as rhymes or flashcards, and do not often act out newly learned words or review their lessons, but rather tend to remember new words by creating visual memories of the learning experience and building connections with existing knowledge (items S1-S9). Their preference of cognitive strategies over all the other strategies is obvious when watching TV/movies (the most popular activity) and reading texts in English. Trying to to imitate native speakers, to avoid word-for-word translation and to experiment with the language are also among the cognitive strategies that students report employing fairly often (items S10-S23). When they experience linguistic difficulties, these students (all independent to experienced users of English already) report almost always looking for an alternative way of expressing the same idea and often using non-verbal communication rather than inventing new words as compensatory strategies (items S24-S29). In terms of a higher order, meta-cognitive approach to learning English (items S30-S38), students much prefer to pay attention to people speaking in English rather than schedule the study of the language into their timetable or even formulating clear goals, although they do consider that they look for how to become better language learners, including by looking for practice opportunities, self-monitoring and self-evaluation. The least used strategies of all seem to be the affective ones, such as writing or talking about feelings

about the experience of learning English, or using rewards, though students report trying to encourage themselves to relax and overcome the fear of making mistakes (items S39-S44). Last but not least, the use of social strategies is not particularly frequent (except perhaps asking others to slow down or repeat), as students only sometimes practice with other students or users of English, ask them for help or try to learn about their cultures (items S45-S50).

Interestingly, between the responses to the EBS items (general epistemic beliefs) and the BALLI items (beliefs about language learning), we identified 45 significant correlations at the .01 level and 115 significant correlations at the .05 level. Upon closer examination, many appeared coincidental, although we did notice correlations such as between the following items:

- E8 and B18 (.267 at .001) indicating that the more students appreciate reordering information according to a personal scheme as a good way to learn generally, the more they also appreciate the importance of language practice and repetition;
- E14 and B35 (.365 at .000) indicating that the more memorization was appreciated as a characteristic of good students, the more important it was also considered in language learning (which also points towards the students showing consistency when answering, since the two items were several pages apart);
- E38 and B23 (.316 at .000) and B35 (.278 at .001), indicating that the more students view information learned in school as certain and unchanging, the more they appreciate grammar and memorization in foreign language learning.

Between the responses to the BALLI set (beliefs and language learning) and the SILL set (language learning strategies), we identified 125 significant correlations at the .01 level and 152 significant correlations at the .05 level, most of which seemed to fall into a certain logic we shall try to unpick. Firstly and unsurprisingly, many of these correlations included those items referring to learning and communication strategies from the BALLI set:

- Appreciation for practicing with native speakers as important in language learning / B13 correlated positively with asking them questions / S49 (.278 at .000) and trying to talk like them / S11 (.279 at .000).
- At the same time, the importance placed on practicing with cassettes or tapes / B26 could be linked to reviewing lessons / S8 (.294 at .000), summarising information head or read in English / S23 (.272 at .001) and planning language study / S34 (.319 at .000).
- The more students rated themselves as timid speaking in English / B21, the less often they reported trying to find way to practice English / S30 (-.375 at .000), starting conversations in English / S14 (-.263 at .001) or asking questions of other students or native speakers / S49 (-.308 at .000)

Then, the belief about aptitudes which correlated most strongly with various strategies was the belief in one's own ability for learning languages / B16, appearing to be directly proportional to looking for opportunities to read in English / S36 (.284 at .000), paying attention to others speaking in English / S32 (.301 at .000), initiating conversations / S14 (.393 at .000), trying to talk like native speakers / S11 (.337 at .000) and looking for how to be a better learner of English / S33 (.312 at .000).

With respect to language learning difficulty, the easier reading and writing were rated compared to speaking and understanding / B34, the less those students reported watching TV/movies in English / S15 (-.227 at .006) or paying attention to speakers / S32 (-.213 at .009). They were also the few in favor of using language learning diaries / S43 (.364 at .000). Concurrently, agreement with vocabulary as being most important in language learning / B17 correlated positively with frequent revision of lessons / S8 (.364 at .000), while agreement with grammar being most important / B23 correlated positively with planning language study time / S34 (.364 at .000).

Regarding students motivations and expectations, the belief that one will learn to speak English very well / B5 correlated positively with making connections between new knowledge and already known English / S1 (.273 at .000), watching TV and movies in English / S15 (.297 at .000), avoiding word-for-word translation / S22 (.292 at .000), looking for as many practice opportunities as possible / S30 (.272 at .001), paying attention to people speaking in English / S32 (.296 at .000), but not with sharing feelings about learning English (-.254 at .001). Also, the reported desire to learn to speak English well / B31 proved to be directly proportional to attempting to talk like

native speakers / S11 (.283 at .001), trying to find out how to be a better learner of English / S33 (.353 at .000) and reading as much as possible / S36 (.314 at .000).

Last but not least, we also noticed that valueing cultural knowledge as part of language learning / B8 and the motivation to learn the language in order to get to know native speakers and their culture / B24, as well as the reported enjoyment when practicing with native speakers / B13 were all directly proportional with trying to learn about culture / S50 (.240 at 0.003 between B8 and S50, .326 at .000 between B24 and S50, and .270 at .001 between B13 and S50).

6. Discussion

The results summarized above point to Romanian medical students being in a transitional, moratorium-state like between pre-reflective/dualistic and reflective/relativistic thinking, beginning to develop a contextualized conception of knowledge and learning, while still prefering teachers and a teaching style that do not foster ambiguity, and not straying too far from associating being a good student with memorization. They seem to be past the stage of believing that science may hold the answers to all questions, but their beliefs and preferences about learning seem to be lagging somewhat behind their ability to exercise epistemic doubt. When focusing only on a selection of students who were most active and contributed often to the course activities versus passive, shy and withdrawn students of a similar level of language proficiency objectively speaking, we noticed a significantly different pattern. The students who had been the most active in class throughout the year expressed stronger disagreement with statements about the speed of learning and the characteristics of successful students which refer to more simplistic beliefs about education.

From a cultural perspective, these results fit in with an educational system where absolutistic, authoritarian teaching is still fairly common and students are not always encouraged to reflect on what they are expected to learn. While attempting to absorb a curriculum dominated by science, the medical students participating in the survey have also had to negotiate their way through a language course where ambiguity, relativism, diversity and reflection were the norm. It is, then, perhaps not surprising that they considered language courses as different to their other subjects. This perceived distinction may qualify foreign language classes at university as an opportunity for epistemic growth and sophistication to take place (from dualism towards relativism), especially when tackling examples of ethically-charged professional interactions from the subjective points of view of each of the interlocutors, such as we had done throughout the academic year. Moreover, students seem motivated, determined and hopeful, willing to fit language competence and language learning into their professional and personal journeys, open to international careers, exchanges and relationships.

In terms of how a language can be learned, the fact that cognitive strategies emerge as more popular in exploiting the language learning potential of watching TV/movies, reading in English and interacting with English speakers may be linked to these students being cognitive learners in general and most commonly exposed to cognitive learning challenges. The social and especially the affective domains seem to be the least obvious to and the least used by the students, which is congruent with our direct classroom experience, when often we found ourselves exploring interpersonal and intrapersonal communication in English as if these were uncharted territory for the students in question. On such occasions, it seemed that Romanian medical students are largely unfamiliar and even uncomfortable with social and affective learning strategies in general.

Upon probing the data for tale-telling links between general epistemic beliefs and beliefs about language learning, it appears that the students who favor memorization in general are also the ones who gave higher scores to memory-based language learning strategies. Moreover, the students who have a more simplistic, absolutistic view of knowledge acquired in school also consider grammar and memorization as important aspects of language learning. At the same time, the students who work with the information provided to them (e.g. by reordering it) appreciate the importance of language practice and repetition. Such connections indicate that some epistemic beliefs are indeed generic and can be traced in how students view learning within a certain discipline, such as language learning in this case. This observation is strengthened by how the data on strategies related further to the data on beliefs, which helps us visualize how the students' beliefs feed into different learning styles and preferences.

In addition and to revisit the point made above about the affective and social side of (language) learning, we found that the students' belief in their own (language) learning abilities and their use of social strategies as well as their attitude towards practice opportunities seem to go hand in hand. Also, the cultural element of language learning could be traced in both the students' motivation and use of social strategies.

7. Conclusions

Before concluding, we would like to point to the sample size in our research, to the survey participants being only junior medical students from only one university in Romania and to English (the language of the questionnaire) not being their native language, but a language all respondents were already independent to experienced users of. Also, when seen in the wider context of the actual course experience, some of the answers of individual students who chose to sign their questionnaires conflict with what we were able to observe directly throughout the academic year. This requires some follow-up in order to identify the reason behind the difference between self-reported beliefs and manifest behaviour.

Thus, our first conclusing remarks are methodology oriented. The questionnaire method is practical, useful and effective, but the pre-determined items may both stretch beyond and fail to cover the students' individual webs of beliefs and strategies. Moreover, anonimity, while considered necessary in order to encourage honest responses, does not allow for close-up assessments of the accuracy and significance of responses which could be possible with qualitative data coming in through discussions and student narratives, as well as contextual data collected through direct observations of classroom behaviour. Also, our analysis suggests that using more than one set of questions covering more than one aspect (e.g. general beliefs, discipline-specific beliefs, learning strategies), therefore a large number of items resulting in a survey taking longer to complete, may be worth the while. The ideal scenario, in our view, is when comprehensive enough quantitative data may also be analysed in relation to direct observations and supplemented by in-depth qualitative explorations as well as some follow-up in which students may become more than research subjects by playing increasingly participatory and emancipatory roles. This is, in fact, the direction that our research is currently taking, as our relationship with many of the students continues both in educational terms and through collaborative explorations of personal epistemology in higher education.

In any case, according to our research, Romanian medical students one year into their undegraduate studies seem to be only mildly skeptical about the attainability of truth, but fairly open to the idea that knowledge is constructed and that learning involves engaging with information. At the same time, they still prefer that teaching be as structured and clear-cut as possible, associating science with lack of ambiguity. Overall, they seem to be able to exercise reflective thinking more about knowledge in general and less about learning, particularly their own. Some of this is explained by age and level of education, but we believe that culture plays a role as well and that the data may also be seen as an indirect reflection of the culture in many Romanian classrooms.

In light of the above, language classes aimed at developing communicative competence in professional contexts (building on the students' existing general language skills) could facilitate the exercise of doubt, exposing students to the subjectivity and diversity of perspectives inherent to human interactions while linking to the scientific/technical side of the profession (e.g. therapeutic versus negative effects of medical communication). In doing this, language courses can complement the science curriculum, fostering critical thinking and providing an environment where the metacognitive, social and affective domains do not go unnoticed, underplayed and undervalued. This is particularly important when educating for professions where empathetic communication and collaborative work are key, such as in medicine, and where the culture is such that informational content and straightfoward cognition dominate the educational agenda.

Acknowledgements

This paper was made within the *'Knowledge Based Society Project – Researches, Debates, Perspectives'* coordinated by the Romanian Academy / Iasi Branch, financed from the European Social Fund and by the Romanian

Government under the contract number POSDRU/89/1.5/S/56815, corresponding to the Sectoral Operational Programme Human Resources Development (SOP HRD).

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